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Capital reduction, financial characteristics and corporate governance

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ARTICLE INFO

Article history:

Received 1 December 2015

Accepted 19 July 2016

Available online xxx

Keywords:

Capital reduction

Fama-French three-factor pricing model

Carhart four-factor pricing model

Matched samples

ABSTRACT

This study investigated the short-term announcement effect and long-term performance of firms with capital reduction. With respect to the short-term announcement effect, we found that the cumulative abnormal returns (CARs) of the CAPM one-factor and the Fama-French (1993) three-factor pricing models of firms are all positively significant. For the long-term performance, the long-term CARs of firms with capital reduction are significantly higher than those of matched samples when the CAPM one-factor and the Fama-French (1993) three-factor pricing models are used in the first year after the event, but are not significantly higher than those of matched samples when the Carhart (1997) four-factor pricing model is used in the first year after the event. Our findings suggest that it is more objective to use the CAPM one-factor or the Fama-French (1993) three-factor pricing model to estimate firms' expected returns when matched samples are used to test the performance of firms with capital reduction, since using matched samples can control other factors in addition to capital reduction announcements. Moreover, regression analysis indicates that capital reduction, the industry, the debt ratio and the proportion of outside directors may affect the performance of firms with capital reduction only in the first year after the event.

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1. Introduction

When firms in Taiwan face a poor economy or operational difficulties, they often use the financial strategy of capital reduction by returning capital to shareholders in cash since 2002. In this matter, firms can improve their financial structure and enhance shareholders' equity per share. The importance of capital reduction can be seen from the number of firms and the amount of capital reduction. More specifically, although only one firm each year from 2002 through 2004 conducted capital reduction, the number increased year by year since 2005 and reached 10 in 2007, then, 11, 10 and 8 firms from 2008 to 2010, respectively, performed capital reduction. The amount of capital reduction was NTD2.2, 0.8, 0.2, 1.9 and 21.5 billion, respectively, from 2002 to 2006, and reached a

high of NTD90.1 billion in 2007. After 2007, it was NTD25.6, 15.5 and 22 billion from 2008 to 2010, respectively.

Usually, when firms are mature and have no suitable investment within a short period, they return cash to shareholders to avoid idle funds. However, it should be noted that there are differences between capital reduction and cash dividend. Capital reduction is not a regularly scheduled payout policy; therefore, the shareholders do not expect it to occur repeatedly. By contrast, shareholders regard cash dividends as a regularly scheduled payout policy. In addition, cash dividends are taxed, while capital reductions that return cash to shareholders are not. Furthermore, while capital reductions may result in reducing the number of shares and increasing the earnings per share, but cash dividends do not cause any changes in the number of shares and thus not increase earnings per share. Lee, Lu, and Chang (2009), Lin, Hsu, and Shen (2009), Lin and Chen (2011), and Wang and Hsiao (2013) found that investors regard capital reduction announcements as positive signals from firms because of the increase in earnings per share. Therefore, firms conducting capital reductions experience positive announcement effects on their stock price. Further, Wang and Hsiao (2013) found that

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Peer review under responsibility of College of Management, National Cheng Kung University.

although capital reduction initially had a significantly positive market reaction, its performance is not significantly positive in the long-term. According to the motivation of capital reduction and results of past literature, firms with capital reduction may exhibit positive effect in the short-term. As to the long-term effect, firms with capital reduction initially have more positive market assessments, but this late diminishes once the news of the capital reduction announcement has been incorporated into the stock price.

Most studies on the long-and short-term effects of capital reduction have used only the one-factor market model to measure the expected return. Based on previous literature, namely [Banz \(1981\)](#), [Fama and French \(1992a, 1992b\)](#), it was found that firms of small size and high book-to-market ratios often have abnormal returns, mainly because the CAPM (capital asset pricing model) one-factor pricing model underestimates the expected return. Therefore, [Fama and French \(1993\)](#) suggested that in addition to market factor, it is more objective to incorporate both size and book-to-market ratio factors to evaluate the expected stock return. Based on the U.S. stock market, [Fama and French \(1993\)](#) found that the average explanatory power of the CAPM one-factor pricing model was 78%, while that of the Fama-French (1993) three-factor pricing model was 93%. If an oversimplified model such as the CAPM one-factor pricing model is used to evaluate the expected stock return, the obtained result may not be objective. In response, this study builds on the research method of previous studies by testing the short-term announcement effect of capital reductions using the CAPM one-factor and the Fama-French (1993) three-factor pricing models.

Many past studies did not investigate the long-term performance of capital reductions.¹ This study investigated the impact of long-term cumulative abnormal returns (CARs) on capital reductions mainly using the CAPM one-factor, the Fama-French (1993) three-factor and the Carhart (1997) four-factor pricing models.² To investigate the effect of capital reduction on firm performance, other factors such as industry, size, and market-to-book (M/B) must be controlled, which many past studies have not done. Consequently, to more objectively test the long-term performance of the capital reduction effect, this study used matched samples to control other aforementioned factors. This study found that the CARs of firms with capital reductions are significantly higher than those of matched samples. This represents an important discovery and is the first contribution of this paper. [Lie \(2005a, 2005b\)](#) argued that financial characteristics may affect the performance of firms with share repurchases. In addition, [Andriosopoulos and Hoque \(2013\)](#) reported that corporate governance may affect the performance of firms with share repurchases. Therefore, this study further investigated the effect of capital reduction, financial characteristics and corporate governance on firms' performance, which has not been explored in the previous literature regarding capital reduction and is the second contribution of this paper.

[Lie \(2005a, 2005b\)](#) argued the use of quarterly data instead of yearly data can illustrate the changes in performance more clearly

due to share repurchases after the event announcement. Accordingly, this study used the quarterly data to investigate long-term performance, the period of which covered eight sequential quarters after the event announcement. In this manner, a more comprehensive investigation can be made, as opposed to a period lasting less than one year after the announcement, as in [Wang and Hsiao \(2013\)](#). Since this study investigated the CARs of eight quarters for more than one year after the event announcement, the impact of firms with capital reduction on long-term CARs can be clearly observed. This is the third contribution of this study. To provide a complete view, this study also used the yearly data to investigate the performance changes in the first and second years after capital reduction. Further, this study employed the Carhart (1997) four-factor pricing model to estimate the expected return, which to our knowledge is absent in the literature regarding capital reduction. This is the fourth contribution of this study.

This study found that the short-term announcement effects are all positively significant regardless of which model was used. In long-term performance, matched samples were employed to control other aforementioned factors, the results of which indicate that the CARs of firms with capital reduction were not positively significant until the third and fourth quarters after the event for both the CAPM one-factor and Fama-French (1993) three-factor pricing models, but not for the Carhart (1997) four-factor pricing model. Results also show that firms with capital reduction perform better than matched samples in the first year after the event, but not in the second year.

In addition, to better understand the effects of financial characteristics such as debt ratio, return on equity (ROE), etc. and corporate governance on long-term CARs, regression analyses of CARs on capital reduction, financial characteristics and corporate governance were conducted. It was found that firms with capital reduction perform better than matched samples in the first year after the event, regardless of which model is used, and that those with higher debt ratios (DEBT) and outside directors' and supervisors' ratios (ODS) have significantly higher CARs. Further, compared to the non-electronics industry, the electronics industry was found to have a significantly negative impact on CARs; that is, the performance of the non-electronics industry is higher than that of the electronics industry when the Fama-French (1993) three-factor and the Carhart (1997) four-factor pricing models are used. To further identify the impact of the 30% highest or 30% lowest ODS, it was found that firms with the highest ODS performed significantly better than those with the lowest. Accordingly, our findings support the argument that corporate governance does hold influence on firms' CARs.

This paper reports findings not present in the existing literature. Most studies examining the long- and short-term effects of capital reduction have only used the one-factor market model to measure the expected return. This study adds to the literature by estimating expected return to test the short-term announcement effect of capital reduction using the CAPM one-factor and the Fama-French (1993) three-factor pricing models. For long-term performance, previous studies have not yet investigated capital reduction beyond one year. In filling this gap in the literature, in addition to the CAPM one-factor pricing model, this study also used the Fama-French (1993) three-factor and the Carhart (1997) four-factor pricing models to test the long-term CARs. Moreover, previous studies have investigated only the impact of the financial characteristics such as debt ratio, ROE, etc. on firms' CARs with capital reduction; in response, this study considered the effect of capital reduction, financial characteristics and corporate governance on long-term performance. Finally, the literature has investigated only the announcement effect and long-term performance for less than one year of firms with capital reduction only; as such, this study

¹ Although [Wang and Hsiao \(2013\)](#) used the Fama-French (1993) three-factor pricing model, they don't list the results.

² Although the Fama-French (1993) three-factor pricing model can explain many anomalous effects of the US stock market, the model does not consider the phenomenon of the price continuation (see [Fama & French, 1996](#)). [Carhart \(1997\)](#) fills this gap to construct the four-factor pricing model by using the Fama-French (1993) three-factor plus the [Jegadeesh and Titman's \(1993\)](#) momentum factor since [Carhart \(1997\)](#) believed that in addition to the [Fama-French \(1993\)](#) three-factor pricing model, [Jegadeesh and Titman's \(1993\)](#) momentum strategy also has considerable explanatory power on the return on assets.

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